

**Amendments to the Drawings:**

Please replace drawing sheets 1-3 and 6 depicting Figs. 1-4 and 10 with the enclosed Replacement Sheets.

See attachment of Replacement Drawings (4 sheets).

**REMARKS****I. Status of the Application**

Claims 26-50 are pending in this application. In the June 7, 2007 office action, the Examiner:

- A. Objected to the Drawings because for not showing every feature of the invention as specified in the claims, as well as Figures 1 and 10 not being labeled as "Prior Art"; and
- B. Objected to the Abstract for not using clear and concise language and for having content longer than 150 words.
- C. Objected to claim 30 due to informalities;
- D. Rejected claims 26-50 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter;
- E. Rejected claims 26-39 and 41-50 under 35 U.S.C. § 102 (b) as being anticipated by DE 19850642 to Schenk;
- F. Rejected claims 26-28, 44-45 and 50 on the grounds of nonstatutory obviousness-type double patenting of US 6,529,925;
- G. Rejected claims 26, 38, 41, 43-45 and 50 on the ground of nonstatutory obviousness-type double patenting of copending application no. 10/763,046;

In this response, applicants have amended Figs. 1-4 and 10 as well as the abstract of the disclosure. Claims 26, 30, 36, 45, 47, 48, 49 and 50 have been amended, and claims 29 and 46 have been cancelled. Applicants respectfully traverse the rejections of claims 26-28, 30-45 and 48-50 and request reconsideration in light of the foregoing amendments and following remarks.

**II The Objections to the Drawings**

The drawings are objected to for not showing every feature of the inventions specified

in claims 26 and 45. However, it is respectfully submitted that the features of claims 26 and 45 are depicted in the drawings. For example, the signal vector is depicted as  $y_k$  in Fig. 2, and the correction vector is depicted as  $z_k$  in Fig. 2. In order to clarify what elements of the drawings constitute the features of the respective claims, figures 1-4 have been amended to include captions/labels for the elements depicted in figures 1-4. As an example, elements 17, 22 and 25 have been labeled "correction device." In addition, element 4 of the drawings includes the label "IFFT" which, with reference to the specification, stands for inverse fast Fourier transform. The IFFT 4 of the drawings corresponds to the transform element, and the correction devices 17, 22 and 25 correspond to the correction element of the claims. These amendments do not constitute new matter. Support for this amendment may be found in the specification on pages 15-20. Accordingly, because the drawings show every feature of the claims, the objection to drawings for not showing every feature of the claims should be withdrawn.

The Examiner also objected to the drawings, requiring that Figs. 1 and 10 be labeled as "Prior Art". In this amendment, Fig. 10 has been amended to include the caption "Prior Art". Applicants respectfully traverse the objection to the drawings with respect to Fig. 1.

Fig. 1 shows an embodiment of the invention. In the June 7, 2007 office action, the Examiner alleged that Fig. 1 showed only what was found in the prior art reference DE 19850642. Prior art reference DE 19850642 shows a crest factor reduction method and apparatus in which the crest factor reduction block 20 is located between the IFFT 4 and the serial-parallel converter 5. (See DE 198 50 642 A1 at Fig. 3). By contrast, Fig. 1 shows a crest factor reduction device 17 that is downstream of both the IFFT 4 and the serial-parallel converter 5. As shown in further detail in Fig. 2, the crest factor reduction device 17 is

located downstream of filters 18 and 19 that are downstream of the serial parallel converter 5.

Fig. 1 does *not* show a circuit that is prior art. DE 19850642 does not disclose a device in which the crest factor reduction device is located downstream of a serial-parallel converter 5. For at least this reason, it is respectfully submitted that the objection to Fig. 1 on the grounds that it should be labeled "Prior Art" is in error and should be withdrawn.

Because the objection to Fig. 10 has been addressed by the amendment thereto, and because the objection to Fig. 1 is in error, it is respectfully submitted that the objection to the drawings for not being labeled "prior art" should be withdrawn.

### III. The Objections to the Abstract

The Examiner objected to the abstract for not having proper content, format or length. In response, the abstract has been amended. In particular, the abstract has been amended to remove the title and reference numerals, and to be less than 150 words. It is therefore submitted that the objection has been adequately addressed and should be withdrawn.

### IV. Objection to Claim 30 for Informalities

Claim 30 was objected to for being dependent upon itself. Claim 30 has been amended to correct dependency to claim 26. Therefore, the objection to claim 30 for informalities should be withdrawn.

### V. Claim Amendments and Cancellations

In addition to the amendment to claim 30 to correct dependency, claims 26, 36 and 45 have been amended to more distinctly claim the respective inventions. In particular, claim 26

has been amended to include the subject matter from claim 29 as well as to include the limitation that the resultant signal is transmitted (explained in more detail below). Similarly, claim 45 has been amended to include the subject matter from claim 46. Claims 29 and 46 have been cancelled. Claim 36 has been rewritten in independent form by incorporating the limitations from its base claim 26. Claims 47-49 have been amended to correct dependency, and claim 50 has been amended to correct an error in the preamble. Therefore, the claim amendments do not constitute new matter.

VI. The Rejection of the Claims Under 35 U.S.C. §101 Should be Withdrawn

The Examiner rejected claims 26-50 as allegedly being directed to non-statutory subject matter. Applicants respectfully traverse.

Claims 26-50 are directed to changing the crest factor of a signal. Changing the crest factor of a signal is a tangible and useful result because the crest factor, as explained in the background section of the present application, determines the dimensioning of elements like receive filters, amplifiers and the like at the receiver side of the signal. Moreover, as claimed, the present disclosure relates to the processing of signals which is also a physical application and, in the case of claim 45, physical elements, i.e. correction element, signal element, are recited.

With respect to claim 26, it is respectfully submitted that signal processing such as that claimed in claim 26 is *not* merely a mathematical algorithm. Moreover, as amended, claim 26 recites that the signal vector is transmitted. Processing and transmission of a signal, digital or not, is a practical physical application that has a useful and tangible result. The claimed invention does not pre-empt use of an abstract algorithm. Claim 26 does not preclude use of

mathematical concepts, but rather processing (and transmission) of signal vectors of a discrete-time signal.

For at least the foregoing reasons, it is respectfully submitted that the rejection of claim 26 under 35 U.S.C. §101 is in error and should be withdrawn. Claims 27, 28, 30-35 and 38-44 all depend from claim 26. Accordingly, because claim 26 includes limitations that define statutory subject matter, the dependent claims 27, 28, 30-35 and 38-44 also include limitations that define statutory subject matter. For at least this reason, it is respectfully submitted that the rejections of claims 27, 28, 30-35 and 38-44 under 35 U.S.C. §101 are in error and should be withdrawn as well.

Similar to claim 26, claim 36, as amended, also recites that the signal vector is transmitted, and, therefore, is directed to statutory subject matter. Accordingly, for at least the reasons given above for claim 26, it is respectfully submitted that the rejection of claim 36 under 35 U.S.C. §101 should be withdrawn. Because claim 37 depends from claim 36, claim 37 also defines statutory subject matter. For at least this reason, it is respectfully submitted that the rejections of claim 37 under 35 U.S.C. §101 should be withdrawn as well.

With respect to claim 45, the rejection under 35 U.S.C. §101 is in error and should be withdrawn is traversed on the grounds that claim 45 recites physical elements, i.e. correction element and transform element, for processing a signal. A claim that includes a real-world elements constitutes statutory subject matter. As a consequence, it is respectfully submitted that the rejection of claim 45 under 35 U.S.C. §101 should be withdrawn. The dependent claims 47-50 depend from claim 45, and, consequently, also include limitations that define statutory subject matter. For at least this reason, it is respectfully submitted that the rejections of claims 47-50 under 35 U.S.C. §101 should be withdrawn as well.

VII. Rejection of Claims 26-28, 30-45 and 48-50 Should Be Withdrawn

Claims 26-28, 30-39, 41-45 and 48-50 were rejected under 35 U.S.C. § 102(b) as being anticipated by Schenk. For the reasons discussed below, Schenk does not teach, show, or suggest each and every element of claims 26-28, 30-39, 41-45 and 48-50, as amended.

A. Claim 26

Claim 26 has been amended to include the limitations from cancelled claim 29. Thus, claim 26 includes the limitation “wherein determining the at least one correction vector further comprises multiplying a base correction vector by a window function.” Schenk fails to teach, show or suggest such a limitation.

The Examiner alleges that Schenk discloses multiplying a base correction vector by a window function. As can be seen from the English version of Schenk (US Patent 6,529,925), the vectors  $\Delta y_1$  and  $\Delta y_2$  are examples of correction vectors. However, the correction vectors  $\Delta y_1$  and  $\Delta y_2$  are formed by multiplying a base vector with a constant and not by a window function. For example, -6 and -1 are provided as examples of constants. (Schenk, col. 5). The use of a window function as claimed in claim 26 allows the calculation of a correction vector that acts with differing strength on different sections of the signal vector.

In Schenk, each element in the signal vector is multiplied by the constant to determine the correction vector. Therefore, the correction vector in Schenk acts with the same strength on different sections of the signal vector. There is no mention of a window function in Schenk.

Accordingly, because Schenk fails to disclose that “determining the at least one correction vector further comprises multiplying a base correction vector by a window function,” Schenk cannot anticipate claim 26. Therefore, it is respectfully submitted that the

rejection of claim 26 over Schenk should be withdrawn.

B. Claims 27, 28, 30-35 and 38-44

Claims 27, 28, 30-35 and 38-44 depend from and incorporate all of the limitations of claim 26, as amended. Accordingly, for at least the same reasons as those set forth above in connection with claim 26, it is respectfully submitted that the rejection of claims 27, 28, 30-35 and 38-44 should be withdrawn as well.

In addition, claim 40 recites additional reasons for patentability over the prior art. For example, claim 40 describes how the elements of the correction vector in a window area of the window function are calculated. There was no prior art rejection of claim 40 to be found in the office action. However, it is submitted that Schenk fails to disclose the use of a window function to calculate the correction vector. Accordingly, it is respectfully submitted that claim 40 is patentable over the prior art.

C. Claim 36

Claim 36 was originally dependent upon independent claim 26. Claim 36 was rewritten in independent form to include all of the limitations of claim 26 (prior to the incorporation of the limitations of cancelled claim 29). Claim 36 was rejected as being anticipated by Schenk. However, claim 36 includes the limitation of “determining a plurality of correction vectors such that the envelope curves of signals described by the correction vectors have different local extreme values.” In Schenk, there is no mention of using a plurality of correction vectors such that the envelope curves of signals described by the correction vector have different local extreme values. In Schenk, only two correction vectors



are used, i.e.  $\Delta y_1$  and  $\Delta y_2$ , which have no extreme values whatsoever since it is a constant vector. Therefore, Schenk does not disclose a plurality of correction vectors having different local extreme values. Accordingly, because Schenk fails to disclose “determining a plurality of correction vectors such that the envelope curves of signals described by the correction vectors have different local extreme values,” Schenk cannot anticipate claim 36. Therefore, it is respectfully submitted that the rejection of claim 36 should be withdrawn.

D. Claim 37

Claim 37 depends from and incorporates all of the limitations of claim 36, as amended. Accordingly, for at least the same reasons as those set forth above in connection with claim 36, it is respectfully submitted that the rejection of claim 37 should be withdrawn as well.

E. Claim 45

Claim 45 stands rejected as being anticipated by Schenk. Claim 45 has been amended to include the subject matter from cancelled claim 46. Thus, claim 45, similar to claim 26, now includes the limitation that “the correction element is further operable to determine the at least one correction vector further by multiplying a base correction vector by a window function.” Therefore, the arguments presented above in connection with claim 26 are applicable to claim 45. Accordingly, for at least those reasons set forth above in connection with claim 26, it is respectfully submitted that the rejection of claim 45 should be withdrawn as well.

F. Claims 47-50

Claims 47-50 depend from and incorporate all of the limitations of claim 45, as amended. Accordingly, for at least the same reasons as those set forth above in connection with claim 45, it is respectfully submitted that the rejection of claims 47-50 should be withdrawn as well.

VIII. Double Patenting Rejections Should Be Withdrawn

Claims 26-28, 44-45 and 50 were rejected on the grounds of nonstatutory obviousness-type double patenting of US 6,529,925; and claims 26, 38, 41, 43-45 and 50 were rejected on the grounds of nonstatutory obviousness-type double patenting of copending application no. 10/763,046.

With respect to claim 26, claim 26 has been amended to include subject matter from claim 29. Therefore, claim 26, as amended, includes limitations not described in US 6,529,925 and copending application no. 10/763,046. Accordingly, it is respectfully submitted that the double patenting rejection of claim 26 over US 6,529,925 and copending application no. 10/763,046 should be withdrawn.

With respect to claim 45, claim 45 has been amended to include subject matter from claim 46. Therefore, claim 45, as amended, includes limitations not described in US 6,529,925 and copending application no. 10/763,046. Accordingly, it is respectfully submitted that the double patenting rejection of claim 45 over US 6,529,925 and copending application no. 10/763,046 should be withdrawn as well.

Claims 27, 28, 30-35, 38, 41, 43-45 and 50 all depend from and incorporate all of the limitations of their respective base claims 26 and 45, as amended. Therefore, claims 27, 28,

30-35, 38, 41, 43-45 and 50 all include limitations not described in US 6,529,925 and copending application no. 10/763,046. Accordingly, the double patenting rejections of claims 27, 28, 30-35, 38, 41, 43-45 and 50 should be withdrawn as well.

IX. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this application is therefore respectfully requested.

In the event applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the applicant conditionally petitions therefore, and authorizes any fee deficiency to be charged to deposit account 13-0014.

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Respectfully submitted,



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